

Proceedings of AFLA 7

The Seventh Meeting of the Austronesian Formal
Linguistics Association

Edited by
Marian Klamer

Vrije Universiteit Amsterdam
Department of Linguistics
2000

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Held at the Vrije Universiteit Amsterdam
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Preface

This volume consists of papers presented at the seventh meeting of AFLA (Austronesian Formal Linguistics Association), held at the Vrije Universiteit on May 11-13, 2000.

For the first time in the history of AFLA, this meeting was held outside the North-American continent, and contained contributions by speakers from eleven different countries: New Zealand, Australia, Indonesia, Brunei Darussalam, Taiwan, the USA including Hawaii, Canada, the UK, France, Germany, and The Netherlands.

Apart from the languages that are traditionally well-represented at Austronesian conferences, we were happy to see that the program also contained work on relatively small or lesser described languages, such as the minority languages of Taiwan, North-West Borneo, Eastern Indonesia, Papua and Oceania.

Special themes of this conference were Iconicity and Argument marking. The papers in this volume show that the program covered a broad range of subdisciplines -- from discourse grammar, phonology, morphology, syntax, to semantics -- and that the authors are working within various theoretical frameworks. But despite the obvious differences in expertise, interest and background, the atmosphere on the conference was typically AFLA: lively and constructive, with an average rate of attendance of about 80%. The papers in this volume deserve the same rate of attention.

This meeting has again furthered the unwritten mandate of AFLA to encourage the formal study of Austronesian languages, especially work by speaker linguists and junior scholars. Six scholars presented analyses of their native language, and more than half of the 45 participants subscribed as 'student'. This suggests that the future of Austronesian linguistics looks very bright indeed.

The eight edition of Afla will be held in the spring of 2001 at the Massachusetts Institute of Technology (MIT) in Boston, USA. The principal organiser will be Ileana Paul.

Marian Klamer, Vrije Universiteit Amsterdam

Proceedings of previous AFLA meetings:

A Selection of the papers of AFLA 2, in 1995 is published as:
Paul, Ileana, Vivianne Phillips, and Lisa Travis (eds.). 2000. *Formal Issues in Austronesian Linguistics*. Dordrecht, Kluwer.

The proceedings of AFLA 3 and AFLA 4 in 1996/1997 are published as:
Pearson, Mathew (ed.). 1998. *Recent papers in Austronesian Linguistics*. UCLA Working Papers in Linguistics 21.

The proceedings of AFLA 6 in 1999 are published as:
Smallwood, Carolyn and Catherine Kitto (eds.). 2000. *Proceedings of AFLA VI*. Toronto Working Papers in Linguistics.

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Fixed Prosodic Effects in Austronesian: An Optimality-Theoretic Account

Adam Ussishkin

UC Santa Cruz

May, 2000

1. Introduction

Templatic effects are widely observed in many languages of the world. Such effects are usually attributed to various domains of morphology; in particular, such effects are strongly associated with reduplicative morphology. Templatic effects may also be a more general property of a language, in which case the language as a whole may be characterized as templatic. It is such cases that I wish to draw attention to in this paper, where I examine a particular type of templatic effect in the Austronesian language Mukah Melanau.

Mukah Melanau is a member of the Northwest Borneo group of Austronesian languages, and is spoken on the northern central coast of Sarawak. This language has been described in the most depth in work of Blust, who performed fieldwork several times on Mukah Melanau and whose descriptions and (historical) analyses appear in Blust (1988, 1997). The data I will consider here are taken from these works.

The data I focus on involve allomorphic alternations in the realization of the active and passive voice markers in Mukah. To briefly lay out the direction of the paper, in section 2 I provide the data, showing that the active and passive markers in the languages have drastically different allomorphy which can be quite easily described. This explanation is given in section 3, where I argue that the allomorphy is predictable based on relatively simple assumptions about featural specification. This move not only allows for a satisfying account of the allomorphy but also relates to the representation of the underlying forms of the morphemes in question. Section 4 provides the bulk of the analysis. I first analyze cases of prefixing allomorphy, after which I turn to cases involving simple ablauting allomorphy. Here I show that the ablauting allomorphy is an effect of fixed prosody, arising in cases where featural preservation is not at stake. In section 5, I turn to the cases Blust refers to as "compound ablaut", which show an unexpected behavior with respect to a subclass of forms. These data, I argue, are evidence for a particular markedness constraint that forces two segments that share place to coalesce into a single segment. Finally, section 6 offers a conclusion.

2. The Phenomenon

The data I focus on concern three forms of verbs in Mukah. The basic form is an unaffixed stem, which may be either a verb or a noun. As a verb, it is usually interpreted as imperative (Blust 1997). There are two morphologically complex forms that are considered here as well: the active and passive forms. These forms present an intriguing allomorphy, which is conditioned by the phonological shape of the base of affixation, and can be divided into two principal surface patterns. The first of these patterns is a prefixational allomorphy: when the first vowel of the stem is any vowel other than schwa ([ə]), we find the prefixed allomorph (*mə-* or *nə-* if the stem is consonant-initial; *m-* or *n-* if the stem is vowel-initial):

- (1) Affixation to consonant-initial verbal bases with full vowel

	<i>Unaffixed</i>	<i>Active</i>	<i>Passive</i>	<i>Gloss</i>
a.	<i>biləm</i>	<i>məbiləm</i>	<i>nəbiləm</i>	'blacken'
b.	<i>gutɪŋ</i>	<i>məgutɪŋ</i>	<i>nəgutɪŋ</i>	'cut with scissors'

(2) Affixation to vowel-initial bases with full vowel

	<i>Unaffixed</i>	<i>Active</i>	<i>Passive</i>	<i>Gloss</i>
a.	aŋit	maŋit	naŋit	'anger'
b.	ituŋ	mituŋ	nituŋ	'count'
c.	ulin	mulin	nulin	'rudder'

The second allomorph occurs when the first vowel of the stem is schwa [ə]. In these cases, we find ablaut: the passive is signaled by *i*, and the active by *u*, in the first syllable:

(3) Affixation to verbal bases with schwa: u-ablaut (active) vs. i-ablaut (passive):

	<i>Unaffixed</i>	<i>Active</i>	<i>Passive</i>	<i>Gloss</i>
a.	gəga	guga	giga	'chase away'
b.	gəgət	gugət	gigət	'gnaw, moth'
c.	kəkay	kukay	kikay	'rake'
d.	kəkut	kukut	kikut	'excavate'
e.	ləpək	lupək	lipək	'fold'
f.	ləpəw	lupəw	lipəw	'pick'
g.	njənjaʔ	njunjaʔ	njinjaʔ	'chew'
h.	njənjet	njunjet	njinjet	'gnaw'
i.	səbət	subət	sibət	'make'
j.	səkəl	sukəl	sikəl	'strangle'
k.	sələg	suləg	siləg	'burn'
l.	səpəd	supəd	sipəd	'hack, chop'
m.	səput	suput	siput	'blowpipe'
	<i>Unaffixed</i>	<i>Active</i>	<i>Passive</i>	<i>Gloss</i>
n.	səsəŋ	susəŋ	sisəŋ	'pay'
o.	səsəp	susəp	sisəp	'sip, suck'
p.	təbək	tubək	tibək	'stab'
q.	təbəŋ	tubəŋ	tibəŋ	'to fell (a tree)'
r.	tətək	tutək	titək	'cut'
s.	tətəŋ	tutəŋ	titəŋ	'drink'

The remaining data of interest illustrate what Blust (1997) refers to as compound ablaut: in these cases the active voice not only has the *u* associated with normal ablaut, but in addition the resulting verb form begins with *m*-. Notice that all the stems to which compound ablaut applies begin with a voiced or voiceless labial plosive.

- (4) Affixation to labial-initial verbal bases with schwa: *m-* plus u-ablaut (active) vs. i-ablaut (passive)

	<i>Unaffixed</i>	<i>Active</i>	<i>Passive</i>	<i>Gloss</i>
a.	bəbah	mubah	bibah	'split (stative)'
b.	bəbəd	mubəd	bibəd	'tie'
c.	bənuʔ	munuʔ	binuʔ	'kill'
d.	pəpah	mupah	pipah	'hit, whip'
e.	pəpək	mupək	pipək	'a whip'

3. Full vs. featureless vowels

A crucial step toward understanding the alternation between forms that exhibit prefixation of the active or passive morpheme, as opposed to those which exhibit ablaut, is to recognize that the forms undergoing ablaut all contain a schwa in their initial syllable. In any form that contains any other vowel in the initial syllable we find a prefixed allomorph. This correlation, I believe, provides strong support for several constraints that are operative in an optimality-theoretic account of these facts.

Another crucial point is the input to these processes. As far as the verbal stems are concerned, I assume that their input is identical to their unaffixed surface form. The issue of input for the prefixes, however, is complicated by the attested allomorphy. I posit an abstract underlying form for each prefix as follows:

- (5) Active and Passive morphemes

<i>Active</i>	<i>Passive</i>
/mu-/	/ni-/

These morphemes are underlyingly more abstract in order to explain their attested surface forms. Consider first the forms where the active or passive morpheme is prefixed; that is, in cases where the stem contains a full vowel in the first syllable. In these cases, the vowel of the prefix always surfaces as schwa. Assuming that Mukah words have a trochaic foot aligned at the right edge of the word, and following Blust (1997), this is due to a constraint called Prepenultimate Neutralization, which reduces any unfooted vowel to schwa. Naturally, this constraint requires further phonetic motivation, but its effects are visible throughout the language: in the data at hand, no exceptions to this constraint exist.¹ As such, it is considered here as an undominated constraint:

- (6) PREPENULTIMATE NEUTRALIZATION (PPN)

Unfooted syllables do not license vowel place features.

Thus, when the prefix *mu-* is attached to a two-syllable stem, the vowel of the prefix is reduced to schwa. This results in a violation of a correspondence-theoretic constraint on featural identity (McCarthy & Prince 1995):

¹ Although I do not deal with this issue here, this neutralization can be related to observations concerning prosodic prominence: stress in Mukah falls on the penultimate syllable, unless that syllable contains schwa, in which case stress is final (Blust 1988). Prepenultimate position is never prosodically prominent, so contrast in vowel quality is not maintained here.

(7) IDENT

Correspondent segments have identical featural specifications.

The two constraints interact in such a manner that PPN must outrank IDENT, as illustrated in the following tableau:

(8) *məgutiŋ* 'to cut with scissors, active'

/mu-gutiŋ/	PPN	IDENT
a. <i>mugutiŋ</i>	*!	
b. <i>məgutiŋ</i>		*

This basic constraint interaction explains the cases of prefixational allomorphy in the Mukah active and passive verbal paradigms. From here, we now move on to the more complicated instances of ablaut, where I argue that such cases involve the effects of requirements on prosodic alignment resulting in fixed prosody.

4. Fixed prosody and its interaction with faithfulness

Let's now consider vowel-initial stems, whose affixed forms involved deletion of an affixal vowel. An example is the form *ituŋ*, whose passive form is *nituŋ*. Note that such a case results in a bisyllabic output. This illustrates our first case of *fixed prosody*, whereby a derived form must conform to a certain output shape. In this case, the fixed output shape is two syllables, and is enforced through a constraint on maximal word size. This constraint is called SYLLABLEALIGNMENT:

(9) SYLLABLEALIGNMENT (σ -ALIGN)

Every syllable must be aligned to some edge of the prosodic word.

σ -ALIGN may be considered an extension of the notion Hierarchical Alignment, as formalized in earlier work by Ito, Kitagawa, & Mester (1996:242). Hierarchical Alignment is defined as follows:

(10) Hierarchical Alignment (Ito, Kitagawa, & Mester 1996:242)

Every prosodic constituent is aligned with some prosodic constituent, containing it.

$\forall \text{Pcat1 } \exists \text{Pcat2 } [\text{Pcat2} \supset \text{Pcat1} \ \& \ \text{Align}(\text{Pcat1}, \text{Pcat2})]$

where Pcat stands for a prosodic category.

The essential insight of Hierarchical Alignment is to disallow any structure that involves more than two instances of a prosodic category *x* contained within a prosodic category *y*. In their analysis of Japanese *zuuŋa-go*, Ito, Kitagawa, & Mester assume that this constrain applies at the foot level, such that every foot must be aligned to some edge of a prosodic word. In this analysis of Mukah fixed prosody, I propose to extend this constraint such that it may apply between non-adjacent levels of prosodic structure. Thus, rather than aligning foot edges to word edges, σ -ALIGN demands that syllable edges be aligned to word

edges. This approach is also taken in Ussishkin (in preparation) to account for similar fixed prosodic effects in Semitic verbal morphology.

σ -ALIGN assesses a violation for every candidate containing more than two syllables, since any syllable not at the edge of the word will not be aligned to a word edge. Crucially, examples of verb stems beginning with a vowel show that the constraint MAX must be dominated. This constraint, familiar from correspondence theory (McCarthy & Prince 1995), appears below.

(11) MAX

Every segment in the input has a correspondent in the output.

The interaction between the two relevant constraints is illustrated here for the derivation of the passive form *nulin* 'rudder'.

(12) *nulin* 'rudder, passive'

/ni-ulin/	σ -ALIGN	MAX
a. n ₁ əulin	*!	
b. nulin		*

Candidate (a), which satisfies PPN (at the cost of violating IDENT), crucially violates the constraint σ -ALIGN. Candidate (b) satisfies σ -ALIGN, at the cost of violating lower-ranking MAX. One potential argument against this ranking logic could be formulated as follows: since candidate (a) violates IDENT, it could be claimed that this form shows only that IDENT outranks MAX, and that there is no evidence for the constraint σ -ALIGN. However, clearer evidence for this constraint and its ranking with respect to MAX is available by looking at forms that exhibit ablaut. For instance, consider the passive form *kikut*. The input to this surface form is *ni-kəkut*. The following tableau again illustrates the interaction between σ -ALIGN and MAX.²

(13) *kikut* 'to be excavated'

/n ₁ i ₂ -kə ₃ kut/	σ -ALIGN	MAX
a. n ₁ ə ₂ kə ₃ kut	*!	
b. ki ₂ kut		**

I return to such forms shortly; for now, it suffices to state that they clearly show that the constraint on fixed prosody outranks the faithfulness constraint MAX.

At this point, some further elaboration on the faithfulness constraints involved in prefixing allomorphy is required. Let us look more closely at the example *nəgutiŋ*. We have already seen how the optimal form is chosen when the two relevant constraints are PPN and IDENT. The following tableau recapitulates this, and also shows how the candidates fare with respect to σ -ALIGN and MAX:

² Crucial correspondence relations in the input and output representations appearing in the following tableaux are indicated with subscripted numerals.

(14) *məgutiŋ* 'to cut with scissors, active'

/ni ₁ -gu ₂ tiŋ/	PPN	IDENT	σ-ALIGN	MAX
a. ni ₁ gu ₂ tiŋ	*!		*	
b. gi ₁ tiŋ				*
c. nə ₁ gu ₂ tiŋ		*	*	

Given this tableau, we may now attempt to establish further rankings among the four constraints seen so far. Given that candidate (c) is chosen over candidate (b), the constraint MAX must dominate the constraint IDENT, since the optimal output violates IDENT, but not MAX. Candidate (b), on the other hand, violates MAX, and satisfies IDENT. Since, as shown above, σ-ALIGN must dominate MAX, by transitivity it must move higher in the ranking as well. Therefore, we rerank these constraints to give the following ranking:

(15) *Ranking among constraints*

PPN
σ-ALIGN
MAX
IDENT

This result is troublesome, however, because it fails to account for a crucial fact: with the constraint σ-ALIGN now higher-ranking than IDENT, we incorrectly choose the ablauting candidate as optimal in all cases, even though that should result in prefixation:

(16) *məgutiŋ* 'to cut with scissors, active'

/ni ₁ -gu ₂ tiŋ/	PPN	σ-ALIGN	MAX	IDENT
a. ni ₁ gu ₂ tiŋ	*!	*		
b. gi ₁ tiŋ			*	
c. nə ₁ gu ₂ tiŋ		*!		*

Candidate (a) can be ruled out immediately because of its fatal violation of PPN, a constraint which is never violated on the surface in this language. However, candidate (b), which we need to rule out, is incorrectly predicted by the ranking in this tableau, as indicated by the backward-pointing hand. What this shows is that some constraint must dominate σ-ALIGN in order to rule out candidate (b) as the optimal form in favor of the actual output, candidate (c). Determining the nature of this constraint is the next issue. I claim that the choice of constraint should reflect what we observe empirically: that in the case of a verbal stem with a full vowel in the initial syllable, we always find prefixing allomorphy. This is in contrast with ablauting allomorphy, which occurs in every verbal stem whose initial vowel is schwa. These observations point to an important insight: that the featural (specifically, the place-featural) specifications of stem vowels require high-ranking faithfulness. In particular, my proposal is that such data provide evidence for an output-output constraint that demands that every place feature in a verbal stem be preserved in a related form:


(17) OO-MAX-PL(ACE)

A place feature in a verbal stem has a correspondent in a related form.

The force of this constraint is to crucially preserve a stem vowel if that vowel is a full vowel; the analysis rests on the critical assumption that the vowel schwa is unspecified for place features. This is why ablaut is found only in cases where a verbal stem has schwa in the initial syllable: deleting the schwa does not violate the constraint OO-MAX-PL. However, when the stem-initial vowel is a full vowel, replacing it, in effect, with the vowel of the prefix does violate this constraint. Note that this constraint is crucially of the output-output variety, following work of Benua (1995, 1997): featural specifications of vowels in related *output* forms is at issue. Thus we do not always find the prefixal vowel surfacing faithfully; as observed above, in prefixing allomorphy this vowel is always neutralized, and only shows up in cases of ablaut. This type of "MAX-F(EATURE)" constraint has precedence in earlier work, e.g., Lombardi 1995, 1998, Causely 1996, Walker 1997; cf. Lamontagne & Rice 1995 on coalescence and feature parsing.


Recall that the motivation behind ablaut is to conform to the fixed prosodic constraint σ -ALIGN. It must be the case, as discussed above, that some constraint dominate σ -ALIGN in order to prevent ablaut from occurring when the stem-initial vowel is not schwa. OO-MAX-PL serves this function, as the following tableau illustrates:

(18) *məgutiŋ* 'to cut with scissors, active'

/ni ₁ -qu ₂ -tiŋ/	PPN	OO-MAX-PL	σ -ALIGN	IDENT
a. ni ₁ qu ₂ tiŋ	*!		*	
b. gi ₁ tiŋ		*!		
 c. nə ₁ qu ₂ tiŋ			*	*

Because the ablaut candidate (b) violates OO-MAX-PL, it may not surface. However, consider the case of a stem whose initial vowel is schwa:

(19) *kikut* 'to be excavated, passive'

/ni ₁ i ₂ -kə ₃ kut/	OO-MAX-PL	σ -ALIGN	MAX
a. ni ₁ ə ₂ kə ₃ kut		*!	
 b. ki ₂ kut			**

The winning candidate here has no violations of OO-MAX-PL: this is because although the first vowel of the stem has no correspondent in the optimal output, the unparsed vowel is schwa, which lacks place features (Jakobson 1938, Anderson 1982, Browman & Goldstein 1992). Therefore OO-MAX-PL is vacuously satisfied by such a candidate. OO-MAX-PL plays no role in determining the outcome in such a case; as the tableau shows, the competition is therefore passed down to the constraint σ -ALIGN, which favors the bisyllabic output.

We have so far successfully accounted for the main split in the allomorphy exhibited in the active and passive verbal paradigms of Mukah. As we have seen, fixed prosody is emergent; that is, it occurs only in case it does not violate higher-ranking faithfulness constraints. Although the language has a strong desire for words to conform to a maximally bisyllabic size, this is only possible if such a prosodic shape does not involve the deletion of vowel-place features from the verbal stem. In the case where the relevant stem vowel is schwa, there are no vowel-place features to preserve, in which case fixed prosody dictates that a bisyllabic output form is optimal.

5. Compound ablaut as coalescence

An interesting portion of the data remain to be captured under this analysis, however. This portion involves what is termed by Blust (1997) *compound ablaut*, which involves a further alternation in the active verbal paradigm of some forms. In addition to the expected *u* ablaut in these forms, they also unexpectedly contain an initial *m*. The relevant data are repeated here for convenience.

(20) Compound Ablaut in Active Verbal Paradigm

	<i>Unaffixed</i>	<i>Active</i>	<i>Gloss</i>
a.	bəbah	mubah	'split (stative)'
b.	bəbəd	mubəd	'tie'
c.	bənuʔ	munuʔ	'kill'
d.	pəpah	mupah	'hit, whip'
e.	pəpək	mupək	'a whip'

A crucial observation here, due to Blust (1997), is that all of the forms to which compound ablaut applies contain a labial plosive in initial position. Given the account so far, these forms are predicted to surface as normal ablauting forms since their verbal stems contain schwa in the initial syllable, resulting in, for instance, **bubah*, **bubəd*, **bunuʔ*, etc. However, such surface forms are routinely avoided in favor of outputs which have initial *m*, rather than initial *b* or *p*.

My proposal is that such forms involve a coalescence of two segments; specifically, the prefix-initial *m* and the stem-initial labial plosive in each case. I will show below that this coalescence, which violates the faithfulness constraint UNIFORMITY arises in order to satisfy a higher-ranking faithfulness constraint. Before elaborating on this point, however, let us focus on the phonetic restriction involved in cases of compound ablaut. Clearly the sequence *mu* favored over the sequences *pu* or *bu*. As discussed by Blust (1997), in morphologically complex forms the sequence *mu* is widespread, arising from prefixation. However, in morphologically complex forms, one never finds *pu* or *bu*. This provides evidence for an OCP-type constraint against sequences of a labial obstruent followed by a round (labial) vowel. This constraint is called *BU.

(21) *BU

The sequence of a labial obstruent followed by a labial vowel is prohibited.³

³ It might be advantageous to view this constraint as a local self-conjunction of the markedness constraint *LAB, with the local domain specified as either the syllable or the prosodic word. As pointed out by Kazutaka Kurisu (p.c.), this move could provide an explanation for the relative ranking between the conjoined constraints *LAB² and *COR², following Spaelti's (1997) Universal Conjoined Constraint Ranking Hypothesis (UCCRH). According to Spaelti, if the ranking $C_\alpha \gg C_\beta$ holds, then so must the ranking $C_\alpha^2 \gg C_\beta^2$. Given the universal markedness harmony scale *LAB \gg *COR, the ranking *LAB² \gg *COR² follows by the UCCRH, and need not be stipulated. For an account of OCP effects analyzed as self-conjunction of featural markedness constraints, see Alderete (1997). Ito & Mester (1998) provide a conjunction-based analysis in their account of Japanese sequential voicing effects. Crucially, for the Mukah case at hand, other constraints may be ranked in between these two self-conjoined constraints. However, this matter is not as simple as generalizing the *BU constraint to a self-conjunction barring adjacent labial segments. Doing so turns out to make the incorrect prediction that compound ablaut should occur when the passive morpheme *ni-* is prefixed to a coronal-initial base, a situation which is never found. Thus I adopt the more specific *BU constraint.

As an aside, such cases provide further evidence for the ranking between σ -ALIGN and MAX, since the fixed prosodic-conforming output surfaces. Relevant correspondence relations are indicated with subscripted numerals.

(22) *Fixed prosody prevails*

/m ₁ u ₂ -b ₃ ə ₄ b ₅ ah/	σ -ALIGN	MAX
a. m ₁ ə ₂ b ₃ ə ₄ b ₅ ah	*!	
b. m _{1,3} u ₂ b ₅ ah		*

Returning now to the issue of coalescence, we note that the fixed prosodic constraint must dominate UNIFORMITY.⁴

(23) UNIFORMITY (McCarthy & Prince 1995)

No element in the output has multiple correspondents in the input.

With UNIFORMITY dominated by σ -ALIGN, coalescence takes place in order to meet fixed prosodic requirements.

(24) *Fixed prosody prevails yet again*

/m ₁ u ₂ -b ₃ ə ₄ b ₅ ah/	σ -ALIGN	UNIFORMITY
a. m ₁ ə ₂ b ₃ ə ₄ b ₅ ah	*!	
b. m _{1,3} u ₂ b ₅ ah		*

In the optimal candidate (b), the stem-initial *b*₃ has coalesced with the prefix-initial *m*₁ to yield *m*_{1,3}. Notice that this merger of the two segments is contingent on their sharing place features: they are both labial. Thus, the constraint OO-MAX-PL is satisfied in the optimal candidate, since the labial place features of both the prefix-initial *m* and the base-initial *b* are preserved. This will prevent compound ablaut from taking place with no restrictions: it is limited to strictly those cases in which the verbal stem happens to begin with a consonant of the same place of articulation of the active voice prefix. There is, however, another important candidate to consider: one in which the prefix-initial *m* and the base-initial *b* coalesce into a *b*. This candidate satisfies OO-MAX-PL, yet such a candidate does not surface (**bubah*). However, this candidate is ruled out by the markedness constraint *BU.

⁴ See Pater (1999) for an account of coalescence in Austronesian that involves the constraint LINEARITY:

LINEARITY (McCarthy & Prince 1995)

The input is consistent with the precedence structure of the output, and vice versa.

Although I do not address this issue further, it is not clear that coalescence violates LINEARITY, since under McCarthy & Prince's definition LINEARITY is violated only when precedence relations are reversed. Whether coalescence involves a reversal of precedence relations seems unlikely. What seems more plausible is that coalescence results in a loss of precedence relations. For this reason, I adopt UNIFORMITY as the constraint violated by coalescence.

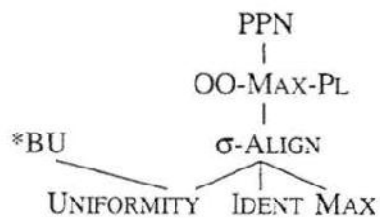
(25) *Non-coalescence vs. coalescence*

/m ₁ u ₂ -b ₃ ə ₄ b ₅ ah/	OO-MAX-PL	*BU	UNIFORMITY
a. b ₁ u ₂ b ₅ ah	*!	*	
b. b _{1,3} u ₂ b ₅ ah		*!	*
c. m ₁ u ₂ b ₅ ah	*!		
d. m _{1,3} u ₂ b ₅ ah			*

Candidate (a) violates OO-MAX-PL, since the [labial] feature of the stem-initial *b*₃ has no correspondent. Candidate (b) satisfies OO-MAX-PL, yet violates *BU. Candidate (c) is like candidate (a) with respect to its fatal violation of OO-MAX-PL but is phonetically identical to the optimal candidate, which violates only relatively low-ranking UNIFORMITY. Compound ablaut is thus analyzed as a way to both avoid the sequence *bu* or *pu* by being faithful to the features of the stem-initial consonant.

6. Conclusion

The following ranking diagram summarizes the analysis presented here:

(26) *Final Ranking*

We have examined a case of fixed prosody in the Austronesian language Mukah Melanau. As we have seen, this language exhibits an interesting allomorphy in its active and passive verbal affixation. The two main allomorphs we have been concerned with involved prefixation on the one hand, and ablaut on the other. A subset of ablauting forms presented an additional puzzle: labial-initial bases show compound ablaut in the active paradigm.

Our analysis made use of several well-motivated faithfulness constraints. In particular, high-ranking OO-MAX-PL forces preservation of featural specifications of verbal stems, which is ultimately responsible for restricting the effects of fixed prosody to cases of stems whose initial vowel is schwa. In such cases, the fixed prosodic constraint σ-ALIGN takes effect, limiting words to two syllables.

The fixed prosodic effects we have observed in Mukah are widespread within a particular morphological domain: that of active and passive affixation in the verbal paradigm. However, such fixed prosody is not observed with other affixational material in the language, at least, not according to the available data. Rather than viewing this as a weakness of the analysis presented here, however, I claim that this scenario is a consequence of the underlying forms of affixes in general in the language. Given the data in Blust (1988), all affixes in this language are prefixes (and in some cases, infixes). However, this is not the sole generalization that appears to hold on affixation.

It is also the case in Mukah that affixes contain at most one syllable.⁵ The typology of affixal segmentism is represented below:

⁵ One example containing a bisyllabic prefix *tələ-* is given, though no meaning is explicitly attributed to it.

(27) Affixational segmentism

C(ə(C))-

That is, all affixes are prefixes that consist of either a single consonant, or a consonant followed by the vowel ə, or a sequence of CəC. The important generalization regarding these affixes, which contrasts to the affixes discussed at length in this paper, is that they all contain the vowel schwa underlyingly.

By contrast, the underlying forms of the active and passive morphemes, as seen earlier, are *mu-* and *ni-*, respectively. These differ in that they crucially have full vowels specified in their inputs. This essential difference explains why ablaut occurs in the cases of the active and passive morphemes but not with any other morphemes in the language. If any affix did have a vowel other than schwa then the account here predicts that an ablauting paradigm would result, under the proper phonological circumstances: namely, when the affix is attached to a stem with schwa in its first syllable. Thus the fact that ablaut is observed only in the active and passive paradigm can be explained as a consequence of underlying representation, and supports the distinction in underlying specification.

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